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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/737,182	12/16/2003	Yoshiaki Maruyama	1324.68802	5492
7590 03/21/2006				
Patrick G. Burns, Esq. GREER, BURNS & CRAIN, LTD. Suite 2500 300 South Wacker Drive Chicago, IL 60606		EXAMINER CALEY, MICHAEL H		
		ART UNIT 2871 PAPER NUMBER		

DATE MAILED: 03/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

A

Office Action Summary	Application No. 10/737,182	Applicant(s) MARUYAMA ET AL.	
	Examiner Michael H. Caley	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/9/06 has been entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 8, 9, 10, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Fujioka et al. (U.S. Patent Application No. 2002/0075429 “Fujioka”).

Regarding claims 1 and 3, Fujioka discloses a base substrate for a liquid crystal display having:

a sealing material forming region (Figure 1 region of element 103) provided in a peripheral portion of a base substrate (Figures 1 and 13 element 101);

a display area (Figure 1 element 118) defined within the sealing material forming region; and

a cell gap control layer (Figure 13 element 104), formed in the display area, that reduces a cell gap between the base substrate and an opposite substrate provided opposite to the base substrate, such that the cell gap in the display area where the cell gap control layer is formed is less than a gap in an area outside of the cell gap control layer (Figure 13).

Regarding claim 2, Fujioka discloses the cell gap control layer as formed of a photosensitive resin (Page 5 [0076]).

Regarding claim 4, Fujioka discloses an adhesive which is spread on either of the substrates and which secures the pair of substrates to each other (Page 2 [0014]; Figure 13 element 103).

Regarding claim 8, Fujioka discloses a sealing material (Figure 13 element 103) formed on the sealing material forming region, wherein a thickness of the sealing material is greater than a thickness of the cell gap control layer (Figure 13).

Regarding claim 9, Fujioka discloses the cell gap between the cell gap control layer and at least one of the substrates includes liquid crystal therein (Figure 13 element 111).

Regarding claims 10 and 13, Fujioka discloses a plurality of gate bus lines formed on the base substrate (Figure 1 element 203, Figure 2A element 203A) and an insulation layer (Figure

2A element 107) provided between the gate bus lines and the cell gap control layer (Figure 2A element 104).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujioka in view of Kodate (U.S. Patent No. 5,748,266).

Regarding claim 5, Fujioka fails to disclose a pillar spacer for maintaining the cell gap. Kodate, however, teaches a pillar spacer as an advantageous means of maintaining the cell gap between a base substrate and an opposing substrate by means of pillar spacers (Column 3 line 66 – Column 4 line 30, Column 4 line 65 – Column 5 line 6).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to place pillar spacers in the display device disclosed by Fujioka as a means of maintaining the cell gap between the base substrate and the opposing substrate. One would have been motivated to use a pillar spacer to maintain a precise gap while avoiding problems associated with spherical spacers due to coagulation and scratching the surfaces of the alignment layer (Column 4 lines 4-16).

Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujioka.

Regarding claim 6, Fujioka fails to disclose a spherical spacer for maintaining the cell gap in the embodiment of Example 4, Figure 13. In a separate embodiment, however, Fujioka teaches a spherical spacer for maintaining the cell gap (Figure 9 element 116; Page 7 [0097]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to place spherical spacers for maintaining the cell gap of the display device disclosed by Fujioka. One would have been motivated to use spherical spacers to ensure a uniform cell gap between the base substrate and the opposing substrate such that the display characteristics are uniform over the entire display.

Regarding claim 7, Fujioka fails to explicitly disclose the cell gap control layer as having a thickness greater than the cell gap. Fujioka discloses the cell gap control layer as having a thickness of 3 microns (Page 5 [0076]). Fujioka discloses the distance D1 of Figure 13, which includes the thickness of the cell gap control layer, as equal to or greater than 5 microns (Page 8 [0107]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to construct the display disclosed by Fujioka such that the cell gap control layer has a thickness greater than the cell gap. Within the optimization range disclosed by Fujioka for the distance D1, Fujioka discloses 5 microns as an acceptable thickness for the sealing material (Figure 13; Page 8 [0107]). Given that the cell gap control layer has a thickness of 3 microns and that the color filter, electrode, and alignment film layers each have a thickness, the cell gap

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has a thickness of less than 2 microns when the thickness of the sealing material is 5 microns.

One would have been motivated to construct the display according the prescribed range of D1 disclosed by Fujioka to avoid defects in the sealing material (Page 8 [0108]).

Claims 11, 12, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujioka in view of Kim et al. (U.S. Patent No. 6,100,954 "Kim").

Fujioka discloses a plurality of drain bus lines formed on the insulation film (Figure 2A element 204a). Fujioka fails to disclose a protection film provided between the drain bus lines and the cell gap control layer and the cell gap control layer as formed directly on the protection film. Kim, however, teaches a protection film (Figure 14B element 179) formed between the drain bus lines (Figure 14B element 125) and the cell gap control layer (Figure 14B element 159) such that the cell gap control layer is formed directly on the protection film.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form a protection film between the drain bus lines and the cell gap control layer and to form the cell gap control layer directly on the protection film in the display device disclosed by Fujioka. Kim teaches a protection film between the drain bus line and the cell gap control layer as advantageous to eliminate problems such as detachment and charge trap (Kim: Column 18 lines 60-66, Column 12 lines 35-64) caused by the use of an organic cell gap control layer as used by Fujioka (Kim: Column 18 lines 60-66). One would have been motivated to form a protection film between the drain bus lines and the cell gap control layer and to form the cell gap control layer directly on the protection film in the display device disclosed by Fujioka to

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maintain a stable characteristic curve of the TFT device and reliable switching according to the teachings of Kim (Figure 14B; Column 12 lines 55-64).

Response to Arguments

Applicant's arguments filed 3/9/06 have been fully considered but they are not persuasive.

Regarding the rejection of claims 1 and 3 as anticipated by Fujioka, Applicant contends that Fujioka fails to disclose a "cell gap control layer". The examiner disagrees with Applicant's arguments and maintains that element 104 disclosed by Fujioka qualifies as a cell gap control layer. Fujioka discloses element 104 as having a thickness of 3 μm (Page 5 [0076]) while the thickness of the sealing material defining the cell gap outside of the cell gap control layer is "equal to or greater than about 5 μm ". Accordingly, the cell gap within the display area disclosed by Fujioka in Figure 13 having layer 104 is equal to or greater than about 2 μm , reducing the cell gap by over 50% as compared to the cell gap without layer 104 outside the display area. Although Fujioka does not name layer 104 a "cell gap control layer", layer 104 significantly affects the cell gap within the display area as discussed above. Furthermore, the claim language does not provide any structural difference of the cell gap control layer that is not disclosed by Fujioka. It has been held that utility need not be disclosed in the reference for the reference to constitute anticipatory prior art (MPEP 2122).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael H. Caley whose telephone number is (571) 272-2286. The examiner can normally be reached on M-F 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael H. Caley

March 19, 2006

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